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1: Vaccine. 1997 Dec;15(17-18):1888-97.

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The immune response to a model antigen associated with PLG microparticles prepared using different surfactants.

Rafati H, Lavelle EC, Coombes AG, Stolnik S, Holland J, Davis SS.

Department of Pharmaceutical Sciences, University of Nottingham, UK.

The effect of different surfactants on the surface characteristics of poly(D,L-lactide-co-glycolide) microparticles prepared by the emulsification/solvent evaporation technique was investigated and the immune response to a protein antigen (OVA) associated with these microparticles was measured. Three surfactants--polyvinyl alcohol (PVA, a conventional stabilizer of PLG microparticles), the non-ionic surfactant, poly(oxyethylene glycerol mono-oleate) [Tagat] and Bile salts (a natural emulsifier)--were used to produce OVA-loaded PLG microparticles. Antigen was detected at the surface of all three types of OVA-loaded microparticles, in amounts in excess of 40% of the total protein load. The levels of specific serum IgG antibody elicited to OVA were significantly higher ($P < 0.05$) after a single subcutaneous administration of antigen associated with the Bile salts and Tagat formulations compared to the PVA formulation. A strong correlation was revealed between the levels of antibody measured and the magnitude of negative surface charge of the particulate carrier. The pattern of the IgG antibody response to OVA was similar in all three cases, indicating that the degradation rate of the PLG polymer determined the duration of the response. The results demonstrate the potential of using different surfactants to produce PLG microparticles with increased adjuvant activity.

PMID: 9413098 [PubMed - indexed for MEDLINE]

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Long-term antibody responses in mice following subcutaneous immunization with ovalbumin entrapped in biodegradable microparticles. [Vaccine. 1993]

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